USSR

UDC 621.382:535.376

GUREVICH, I.M., NOVIKOVA, G.M., PYATNITSKAYA, G.A., IL'INSKIY, A.A., LETICHEVSKIY, YE.A.

"Investigation Of Gallium-Phosphide Light-Emitting Diodes And Development Of Laboratory Generator Of Short Light Pulses"

V sb. Impul's. fotometriya (Pulse Photometry--Collection Of Works), Issue 2, Leningrad, "Mashinostroyeniye," 1972, pp 144-147 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B311)

Translation: The paper investigates GaP light-emitting diodes in a pulse regime (τ = 100 nanosec) with a pumping current of 1.2 A. The luminous efficiency of the diffusion diodes amounts to 5 x 10^{-3} lm/sec/Joule and the epitaxial 0.35 x 10^{-3} lm/sec/Joule. A pulse generator (IGS-1) was developed for the supply of light-emitting diodes with a pulse duration of 10 nanosec, a front of 5 nanosec, and a maximum voltage of 35 V. 3 ill. 6 ref. Yu.M.

1/1

USSR UDC: 621.372.41

SEDUNOV, B. I., NOVIKOV, G. N.

"A Method of Tuning Piezoelectric Resonators"

USSR Author's Certificate No 282441, filed 19 Mar 69, published 11 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V448 P)

Translation: A method is proposed for tuning piezoelectric resonators which are acoustically interconnected. The procedure consists in changing the mass of the electrodes. To improve tuning precision, a parallel tank circuit which is tuned to the rated frequency of the resonator to be adjusted with regard to the static capacitance of the resonator is connected to each of the resonators being tuned.

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1/3 025 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ISLAND AND LINE GRANULARITY DIFFERENCES IN AK4 1 ALLOY FORGINGS -U-

AUTHOR-(03)-MURAVYEV, V.I., GORBUNOV, N.N., NOVIKOV, G.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVODSTVO, NO. 2, 1970, PP 8-10

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MECHANICAL PROPERTY, ALUMINUM ALLOY, MECHANICAL STRENGTH, CHEMICAL COMPOSITION, CRYSTALLIZATION, METAL FORGING, METAL CRACKING/(U)AK6 ALLOY, (U)AK4.1 ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0260 STEP NO--UR/0182/70/000/002/0008/0010

CIRC ACCESSION NO--AP0100772

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/3 025

CIRC ACCESSION NO--AP0100772

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GRANULARITY PHENOMENA OF THE TITLE, ILLUSTRATED IN A PHOTOGRAPH, ARE INVESTIGATED IN THIS PAPER. THESE DIFFERENCES ARE IMPORTANT BECAUSE THEY REDUCE THE MECHANICAL STRENGTH AND REFRACTORINESS OF THE ALLOY MENTIONED IN THE TITLE, AND THE BOUNDARIES BETWEEN SMALL AND LARGE GRAINED ZONES CAUSE DEGENERATION OF THE METAL BY CRACKING. IT IS STATED THAT LARGE GRAINS IN ALUMINUM ALLOYS MAY ARISE IN RECRYSTALLIZATION AS A RESULT OF NONHOMOGENEITIES IN THE CHEMICAL COMPOSITION, AS IN THE AKG ALLOY AS WELL AS THE CRITICAL DEFORMATION DEGREE, AS IN THE AK4-1 ALLOY. THE EXPERIMENTS DESCRIBED WERE DONE WITH RODS 75 AND 80 MM IN DIAMETER MADE OF AK4-1 OF VARIOUS MELTS. IN THEIR ORIGINAL STATES, THE GRAINS IN THE RODS WERE SMALL AND UNIFORM; AFTER TEMPERING AND AGING OF THE RODS, THE GRAINS IN THE 80 MM SPECIMEN REMAINED SMALL AND UNIFORM WHILE THOSE OF THE 75 MM ROD SHOWED DIFFERENCES. SPECIMENS 20 MM THICK WERE USED TO INVESTIGATE THE EFFECT OF THE DEGREE OF DEFORMATION AND TEMPERATURE UNDER STAMPING. AFTER HEATING TO 350, 450, AND 530DEGREES C AND SUBSEQUENT COOLING IN WATER AND AIR, THE AVERAGE DEGREE OF DEFORMATION WAS FROM 4 TO 37PERCENT AND THE TRUE DEGREE OF DEFORMATION FROM 0 TO 85PERCENT, THE LATTER FIGURE BEING DETERMINED BY THE METHOD OF I. M. PAVLOV (ARTICLE IN METALLURG, 1936, NO. 7). ALL SPECIMENS REGARDLESS OF THE TEMPERATURE TO WHICH THEY WERE HEATED SHOWED GRANULAR DIFFERENCES DEPENDING ON THE DEGREE OF DEFORMATION. A TABLE OF THE MECHANICAL QUALITIES OF THE ALLOY FOR VARIOUS TYPES OF MACROSTRUCTURE IS GIVEN.

UNCLASSIFIED

3/3 025 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100772

ABSTRACT/EXTRACT--THE AUTHORS DRAW TWO CONCLUSIONS: THAT THE APPEARANCE OF GRANULAR DIFFERENCES IN AK4-1 FORGINGS IS CONNECTED WITH THE RECRYSTALLIZATION OF PORTIONS WITH A CRITICAL DEGREE OF DEFORMATION, AND THAT STAMPING FOR ONE TRANSITION IS THE MOST EFFECTIVE METHOD FOR ELIMINATING GRANULAR DIFFERENCES AND IMPROVING THE MECHANICAL QUALITY, RELIABILITY, AND LIFE OF MACHINE PARTS.

UNCLASSIFIED

USSR

UDC 621.372,413

KURIN, A.F., NOVIKOV, G.P., ORLOV, V.N. [Voronezh State University]

"Open Resonator With Trihedrial Reflector"

Izv. VUZ: Radiofizika, VOl XV, No 5, May 72, pp 766-772

Abstract: The results are described of experimental studies in the millimeter range of an open resonator formed by a pair of reflectors. The reflecting surface of one of them is made with three faces. The other reflector may be cylindrical or flat. The trihedral geometry of the reflector makes it possible without noticeable deterioration of Q to change the size of the angles between the faces and hence to change the distribution within wide limits of the various modes in the cavity of the resonator, and in particular to produce an essentially nonsymmetrical distribution. Specific combinations of the angles between the faces also assure a selection of the types of oscillations of the resonator both with respect to Q and to the distance between them. Measurements were made of two mutually perpendicular polarizations of the exciting radiation. The scheme of the experimental device with a resonator formed by a trihedral and a cylindrical reflector is discussed in detail and the results of the experiment are described. 5 fig. 6 ref. Received by editors, 24 June 1971.

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Acc. Nr: AP0044141 Ref. Code: UR 0244

PRIMARY SOURCE: Voprosy Pitaniya, 1970, Vol 29, Nr 1, pp 39-42

PROTEIN-BOUND IODINE LEVEL IN THE BLOOD SERUM OF ANIMALS FED ON NATURAL AND SYNTHETIC FOOD RATIONS

G. V. Novikov, G. A. Zakirnichnaya (Leningrad)

Summary

The authors studied the protein-bound iodine content in the blood serum of albino male rats kept for a certain time on artificial and natural food rations containing different amounts of trace elements. The protein-bound iodine (PBI) was measured by using Barker's method as modified by Stepanov. Statistical processing of the measurement data testified to an increase of the BPI level in subgroups fed on iodine-enriched rations. The influence of other trace elements additions as suggested by the formulary of the nuttrition Institute of the AMS of the USSR does not appear to be statistically significant. Natural food rations, basically made up of products originating from the Leningrad region, yielded the PBI level lower than in other groups. The influence of seasonal environmental changes on the PBI level and a considerable variability of this index in albino rats are pointed out.

USSR

UDC: 539.107

NOVIKOV, I. A., SAULIT, V. R.

"Relation Between the Instrumental Line Shape of a Spectrograph and its Ion-Optical Parameters (Point Source). I"

Leningrad, Vestnik Leningradskogo Universiteta, Fizika i Khimiya, Vol 16, No 3, Aug 72, pp 46—54

Abstract: The paper is devcted to determining how the instrumental line shape of a spectrograph depends on its ion-optical parameters (on the order of focusing). The problem is solved as applied to spectrographs without axial focusing with sources of relatively low height. In this case the analysis can be limited to flat beams, which appreciably facilitates solution of the problem. In the first part of the article an investigation is made of line shape in instruments with a point source and even-order focusing. The case of odd-order focusing will be taken up in the second part of the work.

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USSR

DOROSHKEVICH, A. G., ZEL'DOVICH, Ya. B., and NOVIKOV, I. D., Institute of Applied Mathematics of the USSR Academy of Sciences

"Perturbations in an Anisotropic Homogeneous Universe"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 1, 1971, pp 3-8

Abstract: It has been shown that for anisotropic solutions of the Einstein equations close to a singularity the effect of matter on the space-time metric close to the singularity disappears. The cosmological problem of the growth of density perturbations in expanding matter, which is, on the average, at rest relative to a synchronous reference frame, and also variations in the amplitude of gravitational and acoustical waves are examined in the paper. Its aim is to show that the growth of perturbations in the density of matter in an anisotropic expanding universe is a kinetic effect caused by the motion of matter in a gravitational field that is described by solution of equations of gravity for empty space. An attempt is made to find the laws of the growth of perturbations in the density of matter. The nonrelativistic motion of matter is considered. It is shown that in

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DOROSHKEVICH, A. G., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 1, 1971, pp 3-8

anisotropic models of the universe perturbations grow at a rate that is three-five times greater than in an isotropic model.

USSR

UDC 669.71'5.018.9

NOVIKOV, I. I., ZOLOTOREVSKIY, V. S., LEVIN, L. I., DRITS, A. M.

"Effect of Manganese, Zirconium, and Chromium Additives on the Structure of Al-4% Zn-2% Mg Alloy Ingots,"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 112-117 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G194)

Translation: Light and transmission electron microscopes were used to study the structure of continuous casting ingots 92 mm in diameter from Al-4% Zn-2% Mg alloy with additives of 0.35% Mn, 0.15% Cr, 10.15% Zr in the cast and homogenized states. At a homogenization temperature of 450-550° decomposition of the supersaturated solid solution of Mn in Al takes place primarily in the interaxial spaces of the dendrite, and the solid solution of Zr in Al decomposes at these temperatures with the formation of coherent inclusions of the metastable phase. During slow cooling from the homogenization temperature, decomposition of the supersaturated solid solution of Zn and Mg in Al takes place the uniformity of which depends to a significant degree on the Fe and Si content in the alloy. 3 illustrations, 1 table, and bibliographic entries.

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USSR UDC 669.715'5'721.539.4:621.785.6/7:539.27

ZAKHAROV, V. V., NOVIKOV, I. I., YELAGIN, V. I., LEVIN, L. I.

"Effect of the Duration of the Break between Quenching and Artificial Aging on the Structure and Mechanical Properties of Sheet Al-4.2% Zn-1.9% Mg Alloy with Different Manganese, Chromium, and Zirconium Content"

V sb. Struktura i svoysva legk. splavov (Structure and Properties of Light Alloys — collection of works), Moscow, Nauka Press, 1971, pp 53-57 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I643)

Translation: The method of measuring σ_B and $\sigma_{0.2}$ and transmission electron microscopy demonstrated that the structure and strength characteristics of Al-4.2% Zn-1.9 Mg alloy have comparatively low sensitivity to the break between the quenching and artificial aging. Small additions of Mn and Cr to this alloy and additions of Zr in solid solution weakly increase the sensitivity of the strength characteristics to the break time. The large additives of Mn and Cr which are in the form of disperse secondary intermetallides strongly increase the sensitivity of the strength characteristics of the alloy to the break between quenching and artificial aging. The method of transmission electron microscopy demonstrated that obtaining low strength characteristics in the case of a small break

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ZAKHAROV, V. V., et al., Struktura i svoysva legk. splavov, 1971, pp 53-57

time arises from a reduction in the distribution density of the particles of the hardening Z-Mg phase isolated mainly on the surface of the intermetallide of aluminum and the transition metal. 2 illustrations, 1 table, and a 6-entry bibliography.

2/2

1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SOME PROBLEMS OF THE FUEL CELL THERMODYNAMICS -U-

AUTHOR-(04)-LIDORENKO, N.S., MUCHNIC, G.F., NOVIKOV, I.I., RUBASHOV, I.B.

COUNTRY OF INFO--USSR, UNITED STATES

SOURCE--4TH ANNUAL INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE WASHINGTON, U.S.A.

DATE PUBLISHED-------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ENERGY CONVERSION (NON-PROPULSIVE), PHYSICS

TOPIC TAGS--ELECTRIC ENGINEERING CONFERENCE, FUEL CELL, ELECTROMOTIVE FORCE, ION EXCHANGE MEMBRANE, DIFFERENTIAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1701 STEP NO--US/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AT0135297

UNCLASSIFIED

2/2 : 030 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AT0135297
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE FUEL CELL OPERATION IS GIVEN IN THE LIGHT OF THE THERMODYNAMICS OF EQUILIBRIUM AND NONEQUILIBRIUM PROCESSES. AS A RESULT OF USING THE PRINCIPLE OF EQUILIBRIUM PROCESS THERMODYNAMICS, THE ATLAS (OF E.M.F AND EFFICIENCY DEPENDENCE ON TEMPERATURE) FOR THE MAIN WORK REAGENTS CAPABLE OF APPLICATION IN THE FUEL CELL CIRCUITS HAS BEEN MADE. THE CONCEPT OF THE OPTIMAL WORKING PARAMETERS IS INTRODUCED AND THE POSSIBILITY OF THEIR REALIZATION IS DISCUSSED. IN THE SECOND PART, THE MAIN SYSTEM OF THE TRANSFER PROCESS DIFFERENTIAL EQUATIONS IS FORMULATED WITH THE METHODS OF NONEQUILIBRIUM PROCESS THERMODYNAMICS (ON THE EXAMPLE OF A FUEL CELL WITH ION EXCHANGE MEMBRANE, IEM).

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220020-9"

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--C CURVES REPRESENTING THE DECOMPOSITION OF THE SUPERSATURATED SOLID SOLUTION IN ALUMINUM ZINC MAGNESIUM ALLOYS CONTAINING TRACES OF

AUTHOR-(04)-ZAKHAROV, V.V., NOVIKOV, I.I., YELAGIN, V.I., LEVIN, L.I.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V. U. Z., TSVETNAYA MET., 1970, (1), 110-116

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SOLID SOLUTION, ALUMINUM ALLOY, ZINC ALLOY, MAGNESIUM ALLOY, MANGANESE CONTAINING ALLOY, CHROMIUM CONTAINING ALLOY, ZIRCONIUM CONTAINING ALLOY, COPPER CONTAINING ALLOY, TRACE ANALYSIS, MICROALLOYING, BIBLIOGRAPHY, INTERMETALLIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1554 STEP NO--UR/0149/70/000/001/0110/0116

CIRC ACCESSION NO--AP0125180

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125180

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. TIME CURVES REPRESENTING THE DECOMPOSITION OF THE SUPERSATURATED SOLID SOLUTION IN AL,MG,ZN ALLOYS CONTG. TRACES OF MN, CR, ZR, OR CU (C CURVES) WERE PLOTTED. THE ADDITION OF MN, ZR, AND ESPECIALLY CR SHARPLY REDUCED THE STABILITY OF THE SUPERSATURATED SOLID SOLUTION OF ZN AND MG IN AL. THE TRANSITION METALS REDUCED THE STABILITY OF THE SATURATED SOLUTION AS A RESULT OF THE INITIATING ACTION OF HIGHLY DISPERSED SECONDARY INTERMETALLIC COMPOUNDS FORMED IN THE ALLOY. THE INTRODUCTION OF TRACES OF CU INTO AL,MG,ZN ALLOYS CONTG. SUCH ADDITIVES COUNTERACTED THE EFFECT.

UNCLASSIFIED

NOVIKOV, I. I.

UDC 669.293'296'784.017.134669.293'295'784.017.13

PHASE EQUILIBRIA IN THE NIOBIUM CORNER OF THE NB-ZR-C AND NB-TI-C SYSTEMS

[Article by I.I. Druzhinin, A.M. Zakharov, I.I. Novikov, Moscow Steel and Alloys Institute, Department of Physical Metallurgy of Nonferrous, Rare and Radioactive Metals; Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 1, 1972, submitted 2 April 1971, pp 113-120]

The ternary systems, Nb-Zr-C and Nb-Ti-C, were investigated in references [1-5]. The methods of microstructural analysis and x-ray micrography of annealed alloys were used to construct the isothermal sections of the Nb-Zr-C system at 1,700° and the Nb-Ti-C system at 1,500° [1] and 1,600° [2]. In reference [3] using the same methods on sintered alloys, as a result of constructing the isothermal section at 2,000° and the polythermal section, the authors confirmed the existence of the previously established phase domains and demonstrated that the polythermal section of Nb-Zr-C is not quasibinary. In reference [4] a study was made of the isothermal sections at 2,500 and 1,500 degrees, and the schematic of a three-dimensional diagram of state of Nb-Zr-C was constructed. In references [1-4], a study was made of alloys with a high carbon and zirconium (or titanium) content. The position of the phase boundaries in the niobium corner was determined by extrapolation from the domains with high concentration of the alloy elements. In reference [5] a study was made of the isothermal section of the niobium corner of the Nb-Zr-C system at 1,300°. The alloys for the investigation were annealed in advance and cooled slowly. Then they were again heated at 1,300° for three hours and quenched by blowing with argon. According to the results of reference [5], it must be concluded that heating at 1,200-1,300° for three hours, as our paper has shown, does not permit conversion of the excess phases precipitated out of solution during slow cooling into a solution and that the alloys investigated for the construction of the isothermal section at 1,300° had Widmanstatten structure (figure 4b-d in reference [5]) which is formed as a result of insufficiently rapid cooling during quenching. These alloys must be considered single-phase at the homogenization temperature.

In this paper, a study was made of the ternary system of Nb-Zr-C within the limits of 0.028-1.97% C and 0.56-18.5% Zr.

The alloys were prepared in an electric arc furnace with a tungsten electrode on a copper water-cooled tray in an atmosphere of purified helium. The burden materials were niobium of a cathode-ray melt (0.012 C, 0.007% N,

JPRS 55744
9 May 72

NOVIKOV, I. I.

JPRS 55392
9 MAR 72

UDC 669.293:541.8:669.784

SOLUBILITY OF CARBON IN NIOBIUM

[Article by I. I. Druzhinin, A. M. Zakharov, I. I. Novikov, Moscow Steel and Alloys Institute, Department of Physical Metallurgy of Nonferrous, Rare and Radioactive Metals; Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 5, 1971, submitted 10 November 1970, pp 136-139]

The diagram of state of Nb-NbC was first constructed in reference [1]. It was later investigated and more precisely defined in references [2-7]. A eutectic is formed between niobium and carbide Nb_2C, the melting point of which and the position of the line of limited solubility of carbon in niobium differ according to the data of different authors (see the table).

In this paper, alloys containing up to 1.84 percent by weight C were prepared in an arc furnace with a tungsten electrode on a copper water-cooled sole in an atmosphere of purified helium. The burden materials were niobium from cathode-ray melting (0.01 percent C, 0.007 percent N, < 0.01 percent O, 0.001 percent H) and carbide NbC. The cast alloys (specimens 4 × 4 × 7 mm) were 40-70 percent upset in a vacuum device [8] at 1,600 degrees. The deformed test pieces were annealed in a TVV-2A furnace ($1 \cdot 10^{-5}$-$5 \cdot 10^{-6}$ mm Hg) in a niobium basket in stages: 2,100 degrees for 27 hours, 2,000 degrees for 10 hours, 1,800 degrees for 40 hours, 1,600 degrees for 25 hours, 1,200 degrees for 150 hours. The temperature of the test pieces was controlled by the VR5/VR20 thermocouple. For quenching, the test pieces 2 × 3 × 6 mm were placed between two tungsten electrodes, heated in a vacuum ($1 \cdot 10^{-4}$ mm Hg) by direct passage of current to temperatures of 2,100, 2,000, 1,800 and 1,600 degrees for 1 hour and quenched, shutting off the current. The 1 hour holding was sufficient for conversion of the excess phases to the solid solution from which they were separated with slow cooling of the test pieces in the TVV-2A furnace. The individual two-phase test pieces were held at the quenching temperature for two and four hours, but their microstructure did not change on increasing the holding time.

The heating temperature of the test pieces for quenching was controlled by an optical pyrometer which was graduated with respect to brightness of the niobium surface heated to the corresponding temperature. The mean cooling

Alluminum and Its Alloys

USSR UDC 669.715

ISTOMIN-KASTROVSKIY, V.V., NOVIKOV, I.I., and ZOLOTOREVSKIY, V.S., All-Union Institute of Light Alloys; Moscow Institute of Steel and Alloys

"Substructure of Cast Alloys on an Aluminum-Magnesium Base"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 2, pp 442-445

Abstract: Cast aluminum alloys with 6.5 and 10% Mg produced from pure Al (99.99%) and pure Mg (99.92%) and from industrial alloys AMg6 (6% Mg, 0.7% Mn) and Al27-1 (10.5% Mg and 0.1% Be, Ti, and Zr) were experimentally investigated by the method of diffractional electron-microscopy. It was found that in the substructure of alloys on the Al - Mg base each dendritic cell represents a combination of subgrains. In proportion to the withdrawal from dendritic cell boundaries, the subgrain sizes increase and the dislocation density inside the subgrains has a tendency to decrease. The observed substructural characteristics of cast Al - Mg alloys are interpreted. Two illustr., five biblio. refs.

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USSR

UDC 669.28:621.78

ZAKHAROV, A. M., NOVIKOV, I. I., PARSHIKOV, V. G., and PORTNOY, V, K.,
Moscow, Institute of Steel and Alloys

"Age-Hardening of Molybdenum Alloys with Titanium and Zirconium Carbides"

Moscow, Metallovedeniye, No 6, 1971, pp 48-50

Abstract: Age-hardening from 900°C to 1500°C for 0.5-20 hrs in the TVV-2A furnace with a residual gas pressure of 2 x 10^5 mm Hg of molybdenum alloys of systems Mo-Ti-C, Mo-Zr-C, and Mo-Ti-Zr-C, hardened from 2100°C, was investigated by the method of hardness measuring. The phase composition in late aging stages was analyzed electron-microscopically. In the aging of hardened alloys for 10-20 hrs, the same phases are isolated from the molybdenum solution which must be present in the alloys in accordance with equilibrium state diagrams of Mo-Ti-C, Mo-Zr-C, and Mo-Ti-Zr-C. Aging at 1200-1300°C (0.5-0.55 melting temperature) for 2-4 hrs produced maximum hardness. The ZrC carbide hardens most intensely. The effects of aging temperature and duration on the hardness are shown. The Mo_2C carbide decreases the hardening effect by aging. Two figures, two tables, eight bibliographic references.

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USSR

UDC 621.791.052.001.24:539.4

MAZUR, V. G., Engineer, ZHEMCHUZHNIKOV, G. V., and NOVIKOV, I. V., Candidates of Technical Sciences, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Investigation of Strength Under Static Load of Notched Samples of Joints Made by Electroslag Welding"

Kiev, Avtomaticheskaya Svarka, No 12 (249), Dec 73, pp 11-13

Abstract: Tests were conducted at low temperatures for the static fracture of notched samples of 12KhM steel joints made by electroslag welding and multi-operation welding. It was shown that the critical temperature for drop in rated strength of such samples under static load is low. Normalization lowers this temperature insignificantly. These investigations should be considered only as preliminary ones and the results, which are of practical interest, need further checking using other brands of steel. The article contains 3 illustrations and 3 bibliographic references.

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USSR

UDC 669.791.793:669.15-194

MAKARA, A. M., KOVALEV, YU. YA., and NOVIKOV, I. V., Institute of Electric Welding imeni Ye. O. Paton

"Effect of Electroslag Remelting on the Mechanical Properties of Electroslag-Welded Joints of Structural Alloy Steels"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 73, pp 1-4

Abstract: Investigations were carried out at the Institute of Electric Welding for the purpose of determining the effectiveness of electroslag remelting of structural alloy steels and welding wire metal in order to increase the mechanical properties and prevent ruptures in joints made by electroslag welding. Tests were conducted on 20Kh2MA and 16GNMA steels (110-115 mm thick) weighing, respectively, 34 and 21 tons before remelting and 9 and 14 tons after remelting. The only significant changes in chemical composition after remelting were reduced amounts of S, O, and N. Steel 20Kh2MA had decreased strength and increased ductility after remelting and heat treatment (normalization and tempering) while strength and ductility both increased for steel 16GNMA after remelting and heat treatment. Steel 16GNMA also had better impact strength properties following welding and heat treatment at all investigated temperatures (20, -20, -40 and -50°C). With both of these steels the danger

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USSR

- MAKARA, A. M., et al., Avtomaticheskaya Svarka, No 3, Mar 73, pp 1-4

of heat-affected zone ruptures during electroslag welding is reduced after the steels have been remelted. 4 tables, 2 bibliographic references.

2/2

USSR

UDC: 621.316.721

LYSENKO, A. P., KUDRYAVTSEV, V. P., D'YAKOV, O. P., and NOVIKOV, I. V.

"Current Stabilizer"

USSR Author's Certificate No 296251, filed 3 Nov 69, published 14 Apr 71 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No. 12, 1971, Abstract No 12A184P)

Translation: A current stabilizer is proposed, containing a sensitive element, a reference signal source, as well as a comparitor and an activating device. In order to improve the accuracy and speed, it uses as a sensitive element a "current-frequency" converter; and as the comparitor, a frequency-comparison device and counter, while it uses a controlled voltage divider as the activating device. The output of the controlled divider is connected to the input of the "current-frequency" converter; the output of the latter is connected to the input of the frequency-comparison device, the second output of which is tied to the output of the reference signal source; while the output of the frequency comparitor is joined through the counter to the input of the controlled voltage divider. Resume.

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USSR

UDC 621.791.756

MAKARA, A. M., YEGOROVA, S. V., and NOVIKOV, I. V., Electric Welding Institute imeni Ye. O Paton, Academy of Sciences UkrSSR

"Increasing the Output of Electroslag Welding"

Kiev, Avtomaticheskaya Svarka, No 7, Jul 70, pp 39-42

Abstract: The present study discusses the potentials of increasing the output of the electroslag process and improving the quality of welds by regulating the heat distribution in the welding pool in such a manner that the major portion of the thermal output is liberated in zones of maximum heat transfer in the immediate vicinity of the water-cooled forming devices. The experiments were conducted on steels 16GS (elongation at rupture = 50 mm), 09G2S (elongation at rupture = 90 and 120 mm [GOST 3520-62], and 22K (elongation at rupture = 105 mm [TU CKP 1-55]). The significant change in the shape of the metal pool by heat redistribution is illustrated in a figure. Electroslag welding with two wires in fixed position at the sliders appears to be the optimum welding. The conditions which arise at this point are favorable to the crystallization of the metal pool, which promotes higher resistance to hot cracks. The use of filler wire without current raises the resistance of

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MAKARA, A. M., et al, Avtomaticheskaya Svarka, No 7, Jul 70, pp 39-42

welds to hot cracking. Figures in the original article show crystallization layers indicative of changes in the shape to match the thickness of the metal to be welded.

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USSR UDC 621.791.756.011

MAKARA, A. M., YEGOROVA, S. V., NOVIKOV, I. V., Institute of Electric Welding imeni Ye. O. Paton, and BRONSHTEYN, L. M., Petrov Volgograd Plant

"Increase in Seam Impact Toughness With Electroslag Welding"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 43-46

Abstract: This paper describes experiments conducted for improving the shock resistance of the metal ring seams made in the manufacture of oil apparatus vessels made of 16Gs steel (GOST standard 5520-62) the specifications for which are given. The various methods tested were alloying the seam metal within definite limits with elements reducing the cold brittleness of steels, abrupt cooling of the welded metals, and various techniques of electroslag welding involving the use of fluoride flux ANF-6, made up of 60-70% CaF_2 and 30-40% Al_2O_3, to reduce the gas and nonmetallic contents of the seam, using a shallow slag bath, and using electrode wires of 3 mm in diameter applied to the weld zone with roller clamps. A table is given of the various alloys tried by the authors, and there is a second table of the characteristics of alloys involving the use of welding wire Sv-10G2. Photographs of the weld microstructure are also given. The authors promise another article in which the causes of the improvements made in the metal of the weld by their techniques will be discussed.
1/1

USSR

UDC: 621.374.32

INOZEMTSEV, B. I., MAL'SKIY, V. A., NOVIKOV, L. G., and SHURYGIN, I. T.

"Computer Device Using Integrated Circuits"

Moscow, V sb. Svoystva materialov pri povysh. temperature i apparatura dlya ikh ispytaniya (Characteristics of Materials at High Temperatures and the Equipment for Testing Them--Collection of Works), 1972, pp 82-88 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973, Abstract No 2A496)

Translation: The construction and operation principles of a binary-digital computer in a code with a redundancy of 3 are described. The logic circuits of hybrid integrated elements of two types, used in the construction of the computer, and the schematic of the digital readout in lights of the IN-1 type are given. Six illustrations. Bibliography of three. N. S.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--A COMPARATIVE STUDY OF GLYCINE,2C PRIME14 AND LYSINE,C PRIME14 INCLUSION INTO PROTEINS OF INTACT AND INFLAMED DENTAL PULP OF DOGS -U-

AUTHOR--NOVIKOV, L.L.

COUNTRY OF INFO--USSR

SOURCE--STOMATOLOGIYA, 1970, VOL 49, NR 3, PP 34-38

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GLYCINE, LYCINE, PROTEIN, DENTAL MATERIAL, DOG, AMINO ACID, CARBON ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0226 STEP NO--UR/0511/70/049/003/0034/0038

CIRC ACCESSION NO--AP0120920

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120920

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUMMARY. IN EXPERIMENTS ON 26 DOGS THE AUTHOR STUDIED THE INCLUSION OF GLYCINE,2C PRIME14 AND LYSINE,C PRIME14 INTO PROTEINS OF THE PULP OF 208 TEETH (INCISORS, CANINES, PREMOLARS, MOLARS) IN HEALTH AND IN EXPERIMENTAL TRAUMATIC PULPITIS WITH TERMS FROM ONE HOUR TO 28 DAYS. IT WAS NOTED THAT THE RATE OF INCLUSION OF GLYCINE,2C PRIME14 AMINO ACID TOWARDS THE FIRST HOUR AFTERADMINISTRATION IS TWO,THREE TIMES HIGHER THAN THE RATE OF LYSINE,C PRIME14 INCLUSION. A MAXIMAL AMINO ACID INCLUSION OCCURRED DURING THE THIRD HOUR AFTER ADMINISTRATION INTO THE ORGANISM (THIS DOES NOT CONCERN THE PROTEINS OF THE PULP OF INCISORS AND PREMOLARS WHERE THE MAXIMAL INCLUSION OF LYSINE,C PRIME14 WAS OBSERVED ON 24TH HOUR). THE RATE OF ELIMINATION OF GLYCINE,2C PRIME14 FROM PROTEINS OF THE PULP OF INTACT TEETH IN PERIODS OF 6-24 HOURS WAS ONE AND ONE HALF-2 TIMES HIGHER THAN THAT OF LYSINE,C PRIME14 ELIMINATION. AT EARLY PERIODS OF EXPERIMENTAL TRAUMATIC PULPITIS THERE WAS SEEN A CHAOTIC INCLUSION OF AMINO ACIDS INTO PROTEINS OF THE DENTAL PULP. AT LATER STAGES OF EXPERIMENTAL TRAUMATIC PULPITIS THERE WERE FOUND TWO TYPES OF DISTURBANCES OF AMINO ACID METABOLISM. IN THE PROTEINS OF THE PULP OF INFLAMED INCISORS AND PREMOLARS THERE WERE NOTED SHARP SHIFT LIKE CHANGES OF INCLUSION. IN THE PROTEINS OF CANINES AND MOLARS THE INTENSITY OF AMINO ACID INCLUSION GRADUALLY INTENSIFIES AND REACHES THE MAXIMAL LEVEL ON 21ST DAY AFTER THE BEGINNING OF THE EXPERIMENT. FACILITY: LABORATORIYA PATOLOGICHESKOY FIZIOLOGII AND LABORAT. PATOMORFOLOGII TSENTRAL'NOGO N-I INSTITUTA STOMATOL. AMN SSSR, MOSCOW.

UNCLASSIFIED

NOVIKOV, L. N.

UDC 550.83.08

DESIGN PRINCIPLES OF OPTICALLY PUMPED MAGNETOMETERS FOR MEASURING VERY WEAK MAGNETIC FIELDS

[Article by L. N. Novikov, Leningrad, Geofizicheskaya Apparatura, Russian, No 49, 1971, pp 29-35]

In recent years, interest has been growing in the task of measuring very weak magnetic fields, among which are fields with intensity from zero to several Gammas. This interest is connected with the development of space investigations (measuring the magnetic field in outer space and in the vicinity of heavenly bodies), with the design (cryoscopic new principles of navigational equipment, with biophysical investdevices, carrier position finders), magnetocardiography, magnetoencephalography), and also with the measurement of static magnetization of a series of substances with small concentration of magnetic moments. There are reasons to believe that the existing methods of measuring very weak magnetic fields may be extended to measurements of weak field and may parable in magnitude to the Earth's magnetic field and may turn out to be promising also for conventional geophysical magnetic measurements.

We shall examine the methods of measuring very weak fields based on the phenomenon of the optical orientation of atomic moments by a polarized resonance radiation.

Among the physical phenomena which may be taken as a basis for the development of new systems of high sensitivity magnetometers, an important place is occupied by the effect of zero magnetic field atomic ground state level crossing (Hanley effect) experimentally observed for the first time in the system of atoms Cd111 and Cd113 [Lehmann, Cohen-Tannoudji, 1964]. The theoretical possibility of using this effect in magnetometry was first suggested by E. B. Aleksandrov, A. M. Bonch-Bruyevich, and V. A. Khodovoy

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UDC: 534.2

USSR

LYUTYY, V. A., NOVIKOV, L. V., SHVETS, A. I., Moscow

"Pulsations of Pressure in Ring Nozzles"

Moscow, Mekhanika Zhidkosti i Gaza, No 5, Sep-Oct 73, pp 126-132

Abstract: Results are presented from studies of the pulsations of bottom pressure on the end of a ring nozzle, related to the acoustical radiation of the supersonic streams. Pressure pulsations were studied using nozzles flat in the radial cross section with diameter of outer portion of section 110 mm, of inner portion -- 88 mm. An inductive pressure sensor was placed at the center of the end portion. Membrane-type inductive differential convertors were used in an arrangement with counter pressure. The signal was recorded on a 5-channel magnetic recording apparatus with preliminary amplification by a station with a carrier frequency of 36 KHz. The convertors and amplifier-recorder section were calibrated using a resonant-type pulsator, as well as a microphone, amplifier and magnetic recorder manufactured by Bruel and Kjer. The results of calibration indicate that the mean-square error in measurement of pulsation amplitude should not be over ±3 db, of frequency ±3%. The studies of the low-frequency approximation of the dispersion equation for a two-layer cylindrical stream showed

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USSR

-LYUTYY, V. A., NOVIKOV, L. V., SHVETS, A. I., Moscow, Mekhanika Zhidkosti i Gaza, No 5, Sep-Oct 73, pp 126-132

that the ring stream tends to oscillate as a unit whole. It is known that the oscillations of flat streams are axisymmetrical, of circular streams -- primarily bending, but there are flow loads when the oscillations are symmetrical. In the open-bottom area mode, feedback apparently arises due to radiation of waves by several periodic cells in the stream. In the critical mode there is only one cell. In this case, the resonant process does not occur.

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1/2 040 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--FILM STRAIN GAGES FROM A PRIMEIV SUBX B PRIMEIV SUBY COMPOUNDS -U-

AUTHOR-(02)-NOVIKOV, L.V., TEREKHOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--PRIB. SIST. UPR.1970, (2), 57-8

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--STRAIN GAGE, GERMANIUM ALLOY, SILICON ALLOY, TUNGSTEN, ALUMINUM OXIDE, VACUUM TECHNIQUE, CRYSTALLIZATION, NONDESTRUCTUVE TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1453 STEP NO--UR/0445/70/000/002/0057/0058

CIRC ACCESSION NO--AP0135124
UNCLASSIFIED

2/2 040 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135124

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FILMS WERE PREPD. BY EVAPN. OF A GE SUBX SI SUBY ALLOY FROM A W BOAT ONTO A AL SUB2 O SUB3 SUBSTRATE IN A VACUUM OF 5 TIMES 10 PRIME NEGATIVE4 MINUS 5 TIMES 10 PRIME NEGATIVE7 TORR. THE GE SUBX SI SUBY ALLOYS HAVE RESISTIVITIES OF 0.5-60 OHM CM AND 1-26 AT. PERCET SI. THE INCREASE IN THE VACUUM HAS NO PERCEPTIBLE EFFECT ON STABILIZATION OF THE COEFF. OF STRAIN RESISTIVITY KAPPA OF THE STRAIN GAGES, BUT KAPPA IS STABILIZED BY RECRYSTN. ANNEALING AT 600-700DEGREES FOR 10-20 MIN. THE STRAIN GAGES HAVE P TYPE COND., AND THERE IS NO HYSTERESIS AFTER THEIR FREQUENT DEFORMATION UP TO RELATIVE DEFORMATIONS OF 1 TIMES 10 PRIME NEGATIVE3. THE DEPENDENCE OF KAPPA ON THE COMPN. AND THE TEMP. DEPENDENCE OF THE RESISTIVITY CHANGES WITH TEMP. VARIATIONS OF THE GE SUBX SI SUBY STRAIN GAGES ARE PRESENTED.

USSR

UDC 531.1

NOVIKOV, L. Z. and KHARLAMOV, S. A. (Moscow)

"Singularities of the Behavior of a Pendulum With an Elastic Suspension on a Vibrating Base"

Moscow, Mekhanika Tverdogo Tela, No 5, 1973, pp 3-13

Abstract: Consideration of the elastic pliancy of the supports of the axis of retation of a pendulum, mounted on a vibrating base, makes it possible to ascertain new qualitative singularities of its behavior in addition to the ones previously detected by P. L. Kapitsa and N. N. Bogolyubov in the assumption of absolute rigidity of the suspension. The exact equations of motion of the pendulum are replaced by approximate equations of slow oscillations and fast vibrations in accordance with the idea of A. Yu. Il'shinskiy concerning the representation of a complex oscillatory system by simple systems in restricted frequency ranges.

Along with confirmation of the possibility of stabilization of the upper position of equilibrium of a pendulum within the field of the force of gravity and refinement of the conditions of the origination of such an effect, new inclined positions of equilibrium are discovered, their relationship to the parameters is defined, and an investigation is made of stability in the particular

USSR

NOVIKOV, L. Z. and KHARLAMOV, S. A., Mekhanika Tverdogo Tela, No 5, 1973, pp 3-13

cases of vibration of the base that are of practical interest.
7 figures. 1 table. 4 references.

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USSR UDC 531.383

ZENZINOV, O. V. and NOVIKOV, L. Z., Moscow Aviation Institute imeni S. Ordzhonikidze

"The Position of the Axis of Rotation in the Spherical Rotor of a Free Gyroscope"

Leningrad, Priborostroyeniye, Vol 16, No 4, 1973, pp 67-70

Abstract: The quasi-steady rotation of the spherical rotor of a free gyroscope is discussed with reference to the presence of disbalance in a contactless mounting of the electrostatic type. Approximate relationships are found, which characterize the position of the axis of rotation within the rotor body as a function of the angular velocity of rotation and the parameters of the rotor and the mounting. The conclusion is drawn that when the relation between the translational and the angular motion of a spherical rotor is taken into account, the relationship between the position of the stationary axis of rotation and the parameters of the system can be ascertained. 1 figure. 1 reference.

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NOVIKOV, L.Z.

JPRS 59675

1 August 1973

(2)

UDC 537.21.621.319.01.001

THE THEORY OF ELECTROSTATIC SUSPENSION OF A SPHERE

[Article by L. Z. Novikov and O. F. Orlov; Moscow, Elektrichestvo, Russian, No 3, 1967, manuscript 18 October 1965, pp 63-68]

The suspension of an uncharged conducting sphere in an electric field, produced by a system of electrodes surrounding it, in the absence of contact between the sphere and other bodies and media, is examined in this article. The concept of such suspension was developed in the late 1950's in connection with the requirements for highly sensitive inertial navigation systems [1,2] and satellite stabilization systems [3].

In order to achieve this suspension, i.e. to insure the existence of an asymptotically stable equilibrium position of the center of the sphere in the coordinate system connected to the electrodes, it was necessary to regulate in some fashion the electrode potentials, starting at some reference potential, depending on the position and velocity of the center of the sphere in this coordinate system. The designs of suspension (geometry of the electrodes, their number, arrangement, dimensions, technical requirements on the elements etc.) and the general ideas on the choice of potential control law (resonance designs and designs with sphere attitude and velocity sensors, AC or DC) are discussed at length in published works pertaining to the development and application of the electrostatic suspension. In these publications, however, we were not able to find a satisfactory electrostatic suspension which would permit practical calculation of it. A method is proposed in this article for determining the potential regulation law according to a given geometry of the system, required suspension rigidity and damping. The problem is solved for small displacements and velocities of the center of the sphere in the assumption of localization of the field in the electrode-sphere gap without consideration of boundary effects.

We will examine the i-th electrode of the system and the nearby portion of the surface of the sphere as the plates of a capacitor with capacitance C_i, assuming here that the field is localized between these plates and that the boundary effects are insignificant. This assumption is valid if the gap is small in comparison with the linear dimensions of the electrodes

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USSR

UDC: 621.396.965.8

NOVIKOV, M. I.

"Determination of the Parameters of Trajectories of Dynamic Targets"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp. 110, pp 52-56 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8G33)

Translation: Taking the general results of the paper by Konev and Khazen as a basis ("Avtomatika i Telemekhanika", 1970, No 10), recurrent algorithms are derived for estimating the parameters of a target trajectory which are necessary for the operation of an adaptive system. The proposed algorithms do not require knowledge of the matrix of the target parameters which is determined by the maneuvering possibilities and flight conditions of the target. The accuracy of the algorithms is analyzed. Bibliography of two titles. N. S.

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UDC 621.314.61

USSR

NOVIKOV, M. N., PASHENTSEV, I. D. and ZAV'YALOV, V. A.

"Calculation of the Distribution of Pulse Voltage in a Network of Semiconductor Rectifiers in Series"

Sb. tr. Leningr. In-t inzh. zh.-d. transp. (Leningrad Institute of Railroad Transportation Engineers -- Collection of Works), Issue 293, pp 29-38 (from RZh-Elektronika i yeye primeneniye, No 1, Jan 70, Abstract No 1B355)

Translation: The problem of the effect of barrier capacitances of particular rectifiers on the character of the pulse voltage distribution is considered. A method is developed for calculation of pulse voltage distribution in the circuit of type VK^2-200 rectifiers which do not have protecting elements and equalizing elements. The results of the calculated and experimental data are compared. Four illustrations and five references. Summary

UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 022

TITLE--ZONE MELTING OF GALLIUM STUDIED WITH A MATHEMATICAL STATISTICAL METHOD -U-

AUTHOR-(05)-IVANOVA, R.V., BELSKIY, A.A., RUZINOV, L.P., SLOBODCHIKOVA, R.I., NOVIKOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 43-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ZONE MELTING, GALLIUM, ZINC, METAL EXTRACTING, STATISTIC PROCESS, THERMODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0370/70/000/001/0043/0047

PROXY REEL/FRAME--1984/0171

CIRC ACCESSION NO--AP0054967

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 022

CIRC ACCESSION NO--AP0054967

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEPN. OF GA FROM ZN BY ZONE MELTING WAS STUDIED WITH APPLICATION OF STATISTICAL METHODS FOR EXPTL. PLANNING. FOR THE ESTN. OF THE EFFECTIVENESS OF THE PROCESS THERMODYNAMIC, MATERIAL, ECONOMIC, AND TECHNOLOGICAL APPROACHES HAVE BEEN CONSIDERED. THE FINAL MATH. MODEL CORRESPONDS TO A SATISFACTORY DEGREE TO THE PROCESS OF ZONE MELTING OF GA. OPTIMAL VALUES OF EFFECTIVITY CRITERIONS AND THEIR CONNECTION WITH INDIVIDUAL FACTORS CONCERNED HAVE BEEN FOUND.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220020-9"

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--POSSIBLE IDENTIFICATION OF INTERACTION IN A POLYMER PLASTICIZER SYSTEM USING NUCLEAR MAGNETIC RESONANCE -U-

AUTHOR-(03)-NOVIKOV, N.A., SHASHKOV, A.S., GALILOGLY, F.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(5), 323-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PLASTICIZER, SYNTHETIC RUBBER, FLUORINATED ORGANIC COMPOUND, NITRILE RUBBER, STYRENE, NUCLEAR MAGNETIC RESONANCE, CHLOROPRENE/(U)SKF32 FLUORINATED RUBBER, (U)SKN26 NITRILE RUBBER, (U)SKS30 STYRENE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1012 STEP NO--UR/0460/70/012/005/0323/0324

CIRC ACCESSION NO--AP0136439

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136439

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SKF-32 PLASTICIZED WITH DI-BU SEBACATE (I), PHCOME, OR PH SUB2 O, OR NEOPRENE S-40 AND SKN-26 PLASTICIZED WITH I (INTRAMOL. PLASTICIZATION), THERE WAS A POS. DEVIATION OF THE SECOND MOMENT (DELTA H SUB2 PRIME2 GREATER THAN 0) AND THE PLOT OF DELTA H SUB2 PRIME2 VS. PLASTICIZER CONCN. HAD A MAX. ON THE OTHER HAND, IN SKF-32 PLASTICIZED WITH PH SUB2 OF SKS-30 PLASTICIZED WITH MINERAL OIL (INTERMOL. PLASTICIZATION) THERE WAS NO DEVIATION OF DELTA H SUB2 PRIME2 FROM THE ADDITIVE FORMULA (DELTA H SUB2 PRIME2 EQUALS 0).

UNCLASSIFIED

USSR UDC 621.762.2

AGRANAT, B. A., KONTOROVICH, L. Ye., NOVIKOV, N. I.

"Use of Ultrasound for Dispersion of Metal Oxide Powders"

Primeneniye Ul'trazvuka v Metallurg. Protsessakh [Use of Ultrasound in Metallurgical Processes -- Collection of Works], Moscow, 1972, pp 142-145, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G478 by the authors) .

Translation: The possibility is studied of dispersion of oxides of Al, Hf, Y, Zr, and Th using a type UZVD-6 US installation, operating under conditions of high static pressure. The powders produced were used as a hardening phase in heat-resistant alloys based on carbonyl Ni. The dispersed Hf oxide powders facilitate increased long-term heat resistance of dispersion-hardened alloys to the greatest degree.

1/1

Novikov, N.P.

POLYAK, R.I. (Chernovtsy)

Experimental method of pancreatectomy. Pat.fiziol. i eksp.terap. 3 no.1:79-80 Ja-F '59. (MIRA 12:2)

1. Iz kafedry operativnoy khirurgii (zav. - dots. N.P. Novikov) Chernovitskogo meditsinskogo instituta.
(PANCREAS, surgery
exper. excis. technic (Rus))

(Novikov) N.P.

ZERBINO, D.D.

Method for studying the valves of the lyphatic vessels [with summary in English]. Biul.eksp.biol. i med. 45 no.2:125-126 F '58 (MIRA 11:5)

1. Iz kafedry topograficheskoy anatomii (zav. - dots. N.P. Novikov) Chernovitskogo meditsinskogo instituta (dir. - dots. M.M. Kovalev)

(LYMPHATIC VESSELS, anatomy and histology, valves, methods of investigation (Rus))

Novikov, N.P.

LERNER, E.N.

Analgesia in intrasternal blood transfusions and infusions of medicinal solutions [with summary in English]. Eksper.khir. 2 no.4:60-63 Jl-Ag '57. (MIRA 10:11)

1. Iz kafedry operativnoy khirugii (zav. - dotsent N.P.Novikov) Chernovitskogo meditsinskogo instituta i iz klinicheskogo nevrologicheskogo otdleniya (zav. - prof. S.N.Savenko) Chernovitskoy psikho-nevrologicheskoy bol'nitsy.

(INFUSIONS, PARENTERAL, anesth. and anlgesia methods in intrasternal blood transfusion & infusion of drugs)

(BLOOD TRANSFUSION intrasternal, anesth.)

NOVIKOV, N.P.

Anatomy

POLYAK, R.I., kandidat meditsinskikh nauk

Anatomy of the elbow joint. Ortop.travm. i protez. 17 no.6:139 N-D '56. (MLRA 10:2)

1. Iz kafedry operativnoy khirurgii i topograficheskoy anatomii (zaveduyushchiy - dotsent N.P.Novikov) Chernovitskogo meditsinskogo instituta (direktor - dotsent M.M.Kovalev)
(ELBOW)

1/2 047 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--POLYMER MICRODEFECTS AS THE CENTRES OF DESTRUCTIVE CRACKS INDUCED BY LASER IRRADIATION -U-

AUTHOR-(05)-AGRANAT, M.B., CHERNIAVSKIY, F.N., NOVIKOV, N.P., SALUENIA, S.S., LAMPOLSKIY, P.A.

COUNTRY OF INFO--USSR

SOURCE--NATURE, VOL. 226, APR. 25. 1970, P. 349-351

DATE PUBLISHED--25APR70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--LASER RADIATION, CRACK PROPAGATION, DIELECTRIC MATERIAL, POLYMETHYLMETHACRYLATE, POLYSTYRENE RESIN, POLYCARBONATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0433 STEP NO--UK/0000/70/226/000/0349/0351

CIRC ACCESSION NO--AP0119369

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202220020-9"

2/2 047 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0119369
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE SIZE, LOCATION, STRUCTURE, AND PROPERTIES OF MICRODEFECTS IN POLYMERS WHICH ACT AS CENTERS OF DISK SHAPED DESTRUCTIVE CRACKS INDUCED IN THESE MATERIALS BY LASER IRRADIATION. IRRADIATED TRANSPATENT DIELECTRICS INCLUDING POLYMETHYLMETHACRYLATE, POLYSTYRENE, AND POLYCARBONATE ARE CONSIDERED, AND THE EXPERIMENTAL PROCEDURE IS DESCRIBED. THE EXPERIMENTAL RESULTS SUGGEST THAT THE MICRODEFECT NUCLEI ARE MICROPORES OF THE EXAMINED MATERIALS. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT PROBLEM MEKHANIKI. MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.791.75.019.03

YAKUSHIN, B. F., PROKHOROV, N. N., and NOVIKOV, N. N., Moscow Higher Technical School imeni N. E. Bauman

"Machine for Determining Tendencies of Metals to Hot Cracks in Welding"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 47-49

Abstract: A description is given of the LTP1-6M testing machine, developed by the Moscow Higher Technical School imeni N. E. Bauman, to determine the resistance of metals to the formation of hot cracks during welding by the LTP1 method (proposed in 1949 by N. N. Prokhorov). According to this method, stresses and deformations provided from outside sources are added to the stresses and deformations arising during the welding process. The former stresses and deformations appear as a result of the machine's action. By welding a series of specimens under a constant operation mode, with only the stretching force of the machine varying, an index A is found (measured in mm/minute equal to the minimum value of the stretching speed at which hot cracks form in the seam metal or in the metal near the seam. Those alloys with maximum A have the least tendency to hot cracks during welding. The machine consists of a mechanism for gripping and deforming the specimens, a welding head, and starting and measuring electrical circuits, all mounted on the machine chassis. A photograph of the machine and other details concerning its operation are given.
1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF SOME IMPURITIES ON THE PHOTOMECHANICAL EFFECT IN SODIUM CHLORIDE -U-

AUTHOR-(02)-GORIDKO, N.YA., NOVIKOV, N.N.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1268-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SODIUM CHLORIDE, PHOTOEFFECT, FUSED SALT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0478 STEP NO--UR/0181/70/012/004/1268/1269

CIRC ACCESSION NO--AP0126230

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126230

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMPURITIES IN NACL WERE ADDED TO THE MELTS AS SALTS (0.5 MOLE PERCENT NA SUB2 CO SUB3, 0.5 NANO SUB3, AND 0.5 NAPO SUB3), HYDROXIDES (0.1 MOLE PERCENT NAOH AND 1 NAOH), OR AS GASES (O, H) INTRODUCED BY DIFFUSION. ANNEALING OF THE SPECIMENTS IN VACUO LEADS TO COMPLETE DISAPPEARANCE OF THE PHOTOMECH. EFFECT AND ANNEALING OF DEGASSED SPECIMENS IN AN O ATM. DOES NOT LEAD TO TIS REAPPEARANCE, INDICATING THAT O IONS ALONE DO NOT GIVE RISE TO THE PHOTOMECH EFFECT. ANNEALING IN A H ATM. LEADS TO PARTIAL REAPPEARANCE OF THE EFFECT WHICH IS COMPLETELY REESTABLISHED IN O-H TREATMENT TO THE SPECIMENS. THIS SHOWS THAT THE PHOTOMECH. EFFECT IS RELATED TO THE PRESENCE ON THE SURFACE LAYERS OF H PRIME POSITIVE AND OH PRIME NEGATIVE IONS. THOSE SPECIMENS WHICH CONTAIN IMPURITY OH PRIME NEGATIVE IONS POSSESS THE GREATEST EFFECT. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

USSR

UDC 539.3.5

NOVIKOV, N. N., and KHIMENKO, M. V., Kiev State University imeni T. G. Shevchenko

"Effect of Oxygen and Hydrogen Impurities on Microhardness of Germanium"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 9, 1970, pp 143-146

Abstract: A detailed study was made of the role of oxygen and hydrogen in raising the microhardness of germanium, particularly the character of the dependence of the microhardness of germanium with gas impurities on temperature. The microhardness studies were performed on the {111} plane of brand GES non-dislocational antimony-doped germanium. All high-temperature measurements were carried out on a special vacuum device, which the article describes in detail. The results indicate that oxygen and hydrogen strongly affect the mechanical properties of germanium in the low-temperature region. Changes in the microhardness of germanium with the introduction of hydrogen and oxygen impurities are due to changes in the composition and properties of the surface oxide film, particularly a change in the interfacial surface energy of the germanium-oxide boundary as a result of the formation of certain oxygen-hydrogen compounds in the oxide film.

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USSR

UDC 548.31

BADILENKO, N. A. NOVIKOV, N. N., and KHIMENKO, M. V., Kiev State University imeni T. G. Shevchenko

"Dislocation Mobility in Germanium"

Kiev, Metallofizika, No 39, 1972, pp 43-51

Abstract: The mobility of dislocations in pure germanium and germanium alloy with antimony was investigated over a wide interval of temperatures and stresses. Special attention was given to the study of dislocation mobility at low temperatures (150-200°C) and high stresses (10-20 kG/mm²). The obtained results were interpreted on the basis of available theoretical models. 5 tables, 9 figures, 28 bibliographic references.

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USSR

UDC 620.171.3.531.781.2.087-92.62-974

LESHCHENKO, V. M., DOZLOV, I. A., NOVIKOV, N. V., POTAPOVA, V. F., SENIN, A. M. and GORODYSKIY, N. I. Institute of Strength Problems, Ukrainian SSR Academy of Sciences (Kiev, Kaliningrad, Moskovskaya oblast)

"Investigation of the Work Capability of Series-Produced Tensoresistors Under Temperature Conditions to -269°C"

Kiev, Problemy Prochnosti, No 11, Nov 73, pp 101-105

Abstract: On the basis of experimental research, it is established that series-produced tensoresistors, with the use of constantan for the sensitive element and vinyflex lacquer as the base and adhesive, may be used for the measurement of deformations at static and dynamic loads under low-temperature conditions (to -269°C). An evaluation is made of the influence of low temperatures upon the coefficient of tensoresistor sensitivity, and consideration is given to the origination of apparent deformations and to the possibilities of taking them into account.

It was found that tensoresistors made in the manner described above are capable of functioning to a relative deformation of $\varepsilon \approx 2.5\%$, and that with dynamic loading at a temperature of -269°C and with symmetric loading to a relative deformation of $\varepsilon = \pm 0.434\%$ these tensoresistors are capable of

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USSR

LESHCHENKO, V. M., et al., Problemy Prochnosti, No 11, Nov 73, pp 101-105

functioning for up to (2.4-3.1) x 10^6 cycles. The stressed and deformed state of tubular specimens from various materials was investigated during cooling of the specimens from 20 to -269°C.

For measuring deformations brought about by temperature gradients or due to inhomogeneity of the material of the components, tensoresistors with identical temperature characteristics should be used, and the tensoresistors should be selected and grouped on the basis of the apparent deformations in the given temperature interval.

7 figures. 6 references.

Measuring, Testing, Calibrating

USSR

UDC 539.4

NOVIKOV, N. V., CHECHIN, E. V., Institute of Strength Problems, Academy of Sciences of the UkrSSR, Kiev

"Experimental Evaluation of the Strength of Elements of Thin-Walled Pressure Vessels in the Case of Intensive Cooling"

Kiev, Problemy Prochnosti, No 4, Apr 73, pp 37-40

Abstract: The paper describes the UNS-10 installation for testing natural elements and models of thin-walled welded pressure vessels at temperatures from 20 to -196°C. The operation of the unit is explained in detail with the aid of diagrams. Some experimental results are given from testing of thin-walled hemispheres.

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USSR

UDC: 620.178.746

ZNACHKOVSKIY, O. Ya., NOVIKOV, N. V., Kiev

"Influence of Cooling (-269° C) on Rupture Kh18N10T and Kh16N6 Steels in Impact Bending"

Kiev, Problemy Prochnosti, No 3, Mar 73, pp 108-112.

Abstract: The influence of cooling to -269° C and notch sharpness on work of rupture and its components -- work of formation and work of development of rupture cracks -- are studied for Kh18N10T and Kh16N6 steels, typical metals used in cryogenic equipment. It is established that with cooling to -269° C, the work of rupture decreases basically due to a decrease in the work of crack development. The work of crack formation is little dependent on temperature and decreases significantly with increasing notch sharpness. It is demonstrated that the ratio of work of development of a crack to work of formation of a crack can most completely characterize the usability of viscous materials under deep cooling conditions.

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USSR

UDC 620.174.24:669.71'295

NOVIKOV, N. V., and ZNACHKOVSKIY, O. YA., Institute of Problems of Strength, Ukrainian SSR Academy of Sciences

"Features of the Failure of Aluminum and Titanium Alloys at Low Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, May 73, pp 27-29

Abstract: It is shown that significant changes take place in the type of failure in aluminum and titanium alloys during quenching from 20 to -269°C. The heterogeneity of the deformed state of metal in the work zone increases. The failure surface during bending impact of the specimens of aluminum alloys shifts to the outlying areas. The intensity of formation of crack decreases most profoundly at room temperature with an increase in the sharpness of the notch.

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USSR

UDC 620.178.74

ZNACHKOVSKIY, O. Ya., NOVIKOV, N. V., (Kiev)

"Impact Bend Testing at Low Temperatures with Recording of Deformation Diagrams"

Kiev, Problemy Prochnosti, No 12, Dec. 1972, pp 55-57.

Abstract: A system is described for recording of deformation force-bending, force-time, bending-time diagrams during impact bending tests over a broad range of low temperatures (down to -269°C) using various types of impact testors.

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USSR

UDC: 539.4

Blashchuk, V. Ye., Voynitskiy, A. G., Grabin, V. F., Gurevich, S. M., Kas'yan, V. V., Novikov, [redacted] V.

"Deformation Resistance of AT-2 and AT-3 Titanium Alloys and Their Welded Joints at High and Low Temperatures"

Kiev, Problemy Prochnosti, No 7, 1972, pp 96-99.

Abstract: The deformation resistance of AT-3 and AT-2 alloys and seam metal is studied in the 400-700°K temperature interval. The strength of the metal of seams in these alloys in the interval up to 500°K does not fall below 90% of the strength of the alloys. The temperatures dependences of strength and yield point of the metals of the seams and alloys are similar. At 700°K, the strength of the seam metal drops to 80% of the strength of AT-3 alloy. The ductility of the seam metals at normal and high temperatures is similar to the ductility of the base alloys, but falls below the ductility of the base metal at low temperatures. As temperature drops, the decrease in the value of coefficient α_K is greater in the alloys than in the seam metal, but throughout the entire temperature range studied equal.

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USSR

UDC 539.4.431.3

ANDREYEV, L. P., NOVIKOV, N. V., Kiev

"Change in Endurance of Certain Light Alloys Upon Reduction of Temperature from Room Temperature to -269°C"

Problemy Prochnosti, No 11, 1971, pp 45-47.

ABSTRACT: Results are presented from fatigue testing of aluminum alloys D20, AMg6 and titanium alloy AT2 at three fixed temperatures: -20, -196 and -269°C. The dependence of endurance of the alloys on surface smoothness following mechanical working in this temperature range is studied. The results are presented as fatigue curves. The values of fatigue strength are presented for each test condition.

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USSR

UDC 539.4.431.3

ANDREYEV, L. P., and NOVIKOV, N. V., Kiyev, Institute of the Problems of Strength of the Academy of Sciences of the Ukrainian Soviet Socialist Republic

"The Endurance Dependence of Chrome-Nickel Steels on the Cooling Temperature (down to -269 °C)"

Kiyev, Problemy Prochnosti, No. 9, Sep 71, pp 56 -63

Abstract : The endurance dependence on the temperature of chrome - nickel steels Kh16N6 and Kh18N10T was experimentally investigated. The results of fatigue tests of flat prismatic specimens by repeatedly variable bending and cooling conditions of down to temperatures of -269 °C are presented. Effects of the medium (atmospheric conditions, gaseous helium, liquid nitrogen, vacuum 10^{-6} mm Hg), the degree of cold hardening, and surface conditions after mechanical processing by cutting and shot-stream hardening (steel Kh16N6) on the endurance at low temperatures are discussed by reference to diagrams. Seven illustr., three tables, three biblio. refs.

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USSR

UDC 539.53

NOVIKOV, N. V., VOYTENKO, A. F., Kiev.

"Anisotropy of Elastic Properties of Titanium and Its Alloys During Cooling from 20 to -196°C."

Kiev, Problemy Prochnosti, No. 4, Apr 71, p. 47-48.

Abstract: Results are presented from a study of the anisotropy of elastic properties of titanium and certain titanium-based alloys, subjected to direct (VT1, AT2-2, OT4) and cross (APZ) rolling. The investigations performed indicated that the minimal Young-Modulus of VT1 titanium is in the direction of rolling, and Modulus E increases according to a nonlinear dependence by 12% as the cutting angle of the specimen increases from 0 to 90°. As the temperature decreases from 20 to -196°C, the Young Modulus of VT1 titanium increases by 15%. As the degree of alloying of titanium with β-stabilizing elements increases, the anisotropy of the elastic properties and the temperature coefficient of the Modulus of elasticity (dM/dT) decrease. In alloy ATZ, rolled in the cross direction, the anisotropy of elastic properties is practically 0 for the directions studied in the sheet.

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Instrumentation and Equipment

USSR

UDC 620.171.251.1

NOVIKOV, N. V., ALEKSYUK, M. M., VOYNITSKIY, A. G., KOVAL'CHUK, B. I., MITLIKIN, M. D., and ZARUBIN, L. I., Kiev

"Specifics of Mechanical Tests of Structural Materials Over a Broad Range of Low Temperatures"

Kiev, Problemy Prochnosti, No 4, Apr 71, pp 20-26

Abstract: Methods and equipment for mechanical testing at low temperatures used at the Institute of Problems of Strength of the Academy of Sciences Ukrainian SSR are described. The equipment is used to study the temperature dependence of the mechanical properties of steels, aluminum, and titanium alloys. Equipment illustrated includes a device for maintenance of temperatures from 0 to -196°C, multiposition clamps for circular and flat specimens, the UN-30 tensile testing device, allowing loads of up to 30 tons to be applied at temperatures down to -269°K, a miniature semiconductor thermometer, the SZF-1 tensile testing machine, equipped with a chamber for testing at down to -269°C, and an electromechanical tensometer for measurement of linear and angular displacements.

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USSR

UDC:539.5

NOVIKOV, N. V., VOYTENKO, A. F., VOYNITSKIY, A. G., OVSEPYAN, Ye. S, NEKRASOVA, Z. P., Kiev, Moscow

"Influence of Technological Factors on Mechanical Properties of Molybdenum Alloys at Low Temperatures"

Kiev, Problemy Prochnosti, No. 12, Dec 70, pp. 69-71

Abstract: The elasticity, plasticity and strength characteristics of cast molybdenum alloy (0.1% Zr, 0.15% Ti, less than 0.6% W) are presented in the temperature interval between -196 and +20°C. A change is noted in the intensity of growth of strength and plasticity of the alloy with decreasing temperature depending on its structural state. The determining influence of peening on the mechanical properties of this alloy at low temperatures is demonstrated.

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USSR

UDC 539.4

SENIN, A. M., LAMASHEVSKIY, V. P., SIDOROV, N. G., KOPYLOV, A. K., NOVIKOV, N. V., and LEBEDEV, A. A., Kiev, Institute for Problems of Strength, Academy of Sciences UkrSSR

"Strength of Welded Pipe Joints from Heterogeneous Metals at Room and Low Temperatures"

Kiev, Problemy Prochnosti, No 8, Aug 70, pp 64-69

Abstract: The results are presented of an investigation of the strength of welded pipe joints made from heterogeneous metals, such as Kh18N10T steel and AMG-6 alloy, using friction welding and a soft AD1 aluminum interlayer. Tests were conducted under various loading conditions at room (20°C) and low temperatures (-180°C). The effect of the scale factor on strength was investigated by varying the pipe diameter, the width of the interlayer, and the shape of the joints. The results show that the width of the soft interlayer in a square butt joint substantially affects the strength of the joint, and that qualitatively different effects are obtained at different temperatures. At room temperature the strength of the joint decreases with interlayer width, while at -196°C the strength increases.

USSR

SENIN, A. M., et al, Problemy Prochnosti, No 8, Aug 70, pp 64-69

In order to determine the magnitude of thermal stress, an investigation was made of the stress level in the soft interlayer and in joined items during cooling. The measurement of thermal deformations of welded joint elements was conducted tensometrically. The investigation of the effect of loading conditions on strength characteristics was conducted on a test bench designed for combined loading of pipe samples by axial force and internal pressure under conditions of room and low temperatures. The axial and tangential stresses were computed by Lamé formulas for a thick wall cylinder under internal pressure. The fracture stress levels, during application of axial force, internal pressure, and combined proportional loading by axial force and internal pressure at 20° and -180°C are presented in graphs and tables.

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USSR

UDC 539.4

PISARENKO, G. S., NOVIKOV, N. V., Institute of Strength Problems, Academy of Sciences, Ukrainian SSR

"Current Problems in Research on the Carrying Capacity of Cryogenic Pressure Vessels"

Kiev, Problemy Prochnosti, No 8, 1970, pp 3-12

Abstract: The difficulties of the calculation and analytic evaluation of the carrying capacity of large-scale cryogenic pressure vessels due to the complex nature of loading, the influence of temperature and technological design factors upon the properties of the materials are stated. Consideration is given to the possibility of experimental evaluation of the carrying capacity of cryogenic pressure vessels by methods which take into account both the specific nature of the properties of the characteristic structural material and the special features of the

USSR

PISARENKO, G. S., et al, Problemy Prochnosti, No 8, 1970, pp 3-12

force and thermal loading of the vessels. The question of criteria for evaluation of the cold resistance of viscous metals is discussed, and it is proposed that an acoustic method be used for indicating the process of brittle and quasi-brittle destruction. There is a discussion of methods of the experimental study of the stress-deformed state and the strength of model and full-scale pressure vessels and cryogenic temperatures. 2 figures, 2 tables, 20 bibliographic entries.

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USSR

UDC 532.132

DIKINA, L. S., YESEL'SON, B. N., NOVIKOV, P. S., RUDAVSKIY, E. Ya., Physico-technical Institute of Low Temperatures, Academy of Sciences of the UkrSSR, Khar'kov

"Dispersion of Heat Waves in He-II With a Damped Normal Component"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 17, No 12, Dec 72, pp 1989-1996

Abstract: The authors study the velocity of heat waves in narrow channels filled with superfluid helium. A carbon film was used as the radiator, and a thin antimony-doped germanium single crystal acted as the receiver. The heat waves propagated in narrow channels formed by fine glass filaments. The measurements were made by the pulse-phase method in the substitute $1.4^{\circ}K-T_{\lambda}$ temperature interval at radiation frequencies of 0.6, 2.0, and 3.0 kHz. It is shown that as the frequencies decrease with increasing depth of penetration of the viscous wave there is an increase in damping of the normal component and, hence, an increase in the degree of dispersion of the heat waves. The variation of the heat wave velocity in the temperature and frequency agrees satisfactorily with theoretical predictions if the mean effective dimension of the channels is taken as the normalizing parameter.

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USSR UDC 681.3.001.57

KAMNEV, B. P., NOVIKOV, O. A.

"A Device for Simulating Queueing Processes"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 23, Aug 71, Author's Certificate No 310263, Division G, filed 25 Mar 70, published 26 Jul 71, pp 154-155

Translation: This Author's Certificate introduces a device for simulating queueing processes. The device contains a random time interval generator, a simulator of the servicing apparatus, a module which simulates the queueing point, a logical distribution device, and a measurement device. As a distinguishing feature of the patent, in order to extend the range of problems which can be solved, the installation contains time limitation simulators, each of which is connected at its output to the corresponding queueing point simulator. The output of each queueing point simulator is connected to one input of the corresponding time limitation simulator, while the other input of each time limitation simulator is connected to the output of the logical distribution device.
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1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CUTTING OUT SILICON POWER RECTIFIERS AT A HIGHER FREQUENCY -U-

AUTHOR-(03)-KOSHCHEYEV, L.G., NOVIKOV, G.I., TRETYAK, T.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ELEKTROTEKHNIKA, 1970, NR 2, PP 50-52

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SILICON RECTIFIER, HIGH FREQUENCY, PH JUNCTION, RC CIRCUIT, PROTECTIVE EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1239 STEP NO--UR/0292/70/000/002/0050/0052

CIRC ACCESSION NO--AP0123200

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123200

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN FROM AN EXPERIMENTAL STUDY OF THE EFFECT OF P,N, JUNCTION TEMPERATURE, RATE OF CURRENT VARIATION, AND PROTECTIVE RC,CIRCUIT PARAMETERS ON THE CUTTING OFF PROCESS OF SILICON POWER RECTIFIERS. RESULTS ARE GIVEN FROM TIME MEASUREMENTS FOR CUTTING OFF SILICON RECTIFIERS. EXPERIMENTAL RELATIONSHIPS ARE PRESENTED SHOWING THE EFFECT OF THE ABOVE FACTORS ON CUTTING OFF TIME. ORIGINAL ARTICLE: SIX ILLUSTRATIONS AND NINE BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

USSR

UDC 621.791.053.004.64:669.715

KRYUKOVSKIY, V. N., Candidate of Technical Sciences, NOVIKOV, O. M., Engineer, MESHKOVA, O. V., Candidate of Technical Sciences, and SUSHKOV, V. N., Engineer

"Discontinuities in Welds of Alloy AMg6 in the Presence of Oxide Inclusions"

Moscow, Svarochnoye Proizvodstvo, No 12, Dec 70, pp 25-27

Abstract: The article describes results of a study of the reasons for the formation of discontinuities in welds of alloy AMg6. Weld discontinuities due to the presence of oxide skins can be divided into two types, viz. long ones forming along the axis of the weld (poor fusion) and short ones situated at an angle to the axis of the weld. The first type results from poor preparation of the groove face surface, shifting of the arc relative to the butt, as well as increased butt gap. The second type results from oxidation of the filler wire and groove face surface during welding. For purposes of establishing the quantitative dependence of total discontinuity length on the butt gap size, 500 x

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USSR

KRYUKOVSKIY, V. N., et al., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 25-27

250 x 4 mm plates were welded with a gap of 0.25-3.0 mm. Single-phase and three-phase nonconsumable-electrode argon welding was used. The results indicate that there is a range of butt gap values (1.0-1.5 mm) in which there is a minimum cathode sputtering area and a maximum discontinuity length. This range is wider in single-phase than in three-phase welding. An accelerated single-phase welding regime (increasing the weld rate from 10-15 to 20-25 m/hr with a corresponding increase in the welding current) contributes to more complete breakdown and dispersion of the oxide skins, resulting in over a threefold decrease in the total discontinuity length. The assembly and fixation of weldable elements with a minimum butt gap and the use of accelerated procedure and a three-phase instead of a single-phase arc are recommended to prevent the formation of discontinuities due to oxide inclusions in welds.

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USSR

UDC 536.244:533.5

NOVIKOV, P. A., SHCHERBAKOV, L. A.

"Study of Process of Heat Exchange and Hydraulic Resistance During Flow of Air Through Narrow Rectangular Channels"

Inzhenerno-fizicheskiy Zhurnal, Vol 22, No 3, 1972, pp 450-455.

Abstract: Results are presented from experimental studies of heat exchange during forced movement of air through narrow channels of rectangular cross section with a distance between plates h = 1.5, 3, 5 and 8 mm.

The studies were performed with cooling of the air in the range of Reynolds numbers 360-32,000 and pressures of $(0.133\text{-}10)\cdot10^4$ n/m^2.

Analysis of the experimental data produced and comparison of these data with the data of a number of other authors indicate that inertial forces are more strongly manifested in narrow channels than in channels with larger characteristic dimensions. In the criterial dependences produced, the exponent with the Reynolds criterion, according to our experimental data, is higher, particularly in the area of laminar flow than is the case for channels with larger characteristic dimensions.

Based on these experimental data on heat exchange, it is established that the loss of stability of laminar flow at Reynolds numbers of over 1,800

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USSR

UDC 536.244:533.5

NOVIKOV, P. A., SHCHERBAKOV, L. A., Inzhenerno-fizicheskiy Zhurnal, Vol 22, No 3, 1972, pp 450-455.

increases at some distance from the input cross section of the channels. For very short channels (l/h < 50) in the area of Reynolds numbers from 1,800 to 5,600, the experimental data on heat exchange can be described by equations characteristic for the laminar flow area.

The work also studies the influence of free convection on heat exchange with air flow in the area of Grasshoff numbers from 0.25 to 2,300.

The experimental data on heat exchange are presented in criterial dependences.

The experimental data on hydraulic resistance agrees satisfactorily with the well-known data of other investigators. 1 Table; 2 Figures; 6 Biblio. Refs.

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USSR

UDC 536.244:533.5

NOVIKOV, P. A., SHCHERBAKOV, L. A.

"Study of Hear Transfer in a Flow of Rarefied Gas in Narrow Channels"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 5, May, 1971, pp 879-883

Abstract: Heat transfer at forced air flow in narrow channels with diameters of 1.5, 3, 4, and 8 mm in a wide range of velocities and pressures is studied experimentally. The experiments were carried out in heat exchangers of copper tubes. To determine the behavior of average heat transfer coefficient within the starting length of channels the experiments have been carried out with various relative channel lengths. It was established that the change in average heat transfer coefficients takes place within the channel length less than 100 diameters. Within the channel length more than 100 diameters the average heat transfer ceofficient remains constant and the experimental data may be approximated by criterial relationships. It was also found that at Reynolds numbers 1700 through 2250 heat transfer coefficient increases sharply.

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USSR

UDC 536.248.2

BALAKHONOVA, V. I., NOVIKOV, P. A., SUBACH, V. M.

"Influence of Mass Transfer on Heat Transfer During Evaporation of Liquid with an Open Surface into a Rarefied Gas Medium"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 3, Mar. 71, p. 405-410.

Abstract: The process of evaporation of a liquid from an open surface is studied for an ambient pressure of $1.33 \cdot 10^3$ and $2.67 \cdot 10^3$ n/m^2. An experimental investigation is performed to establish the mechanism of the influence of mass transfer on heat transfer during evaporation under free convection conditions. The experiments indicated that blowing of a gas into the boundary layer at first causes an increase in the heat transfer coefficients for low flow rates of gas injected, then with increasing flow rate, the coefficient of heat transfer begins to drop. Thus, the formation of the new phase occurs differently, depending on the relationship of the velocities.

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Microbiology

USSR

UDC 616.981.553-036.21(476)

POLESHKO, D. V., DOLBIK, M. I., NOVIKOV, P. L., and LINNIKOVA, G. D., Chair of Infectious Diseases, Minsk Medical Institute, and Minsk Municipal Hospital for Infectious Diseases

"Clinical and Epidemiological Data on Botulism in Belorussia"

Moscow, Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 137-139

Abstract: During the last 4 years, 30 persons suffering from botulism have been treated at the Minsk Municipal Hospital; 26 of these patients had become ill after ingestion of domestically prepared mushrooms. All of the cases were caused by Type B Clostridium botulinus. The most pronounced symptoms were ophthalmic and pharyngeal paresis, with ensuing disturbed vision and severe dryness of the mouth. Gastrointestinal disorders developed in 17 cases. Cardiac complications were observed in patients suffering from the moderate and severe forms of the disease. No significant hematological changes were found. Administration of antibotulinas sera and penicillin was effective. To prevent botulism, mushrooms must be thoroughly cleaned to remove soil particles. They should also be properly sterilized. For marinated stocks, adequate amounts of preservatives must be added.

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USSR

UDC: 621.372.8.09

NOVIKOV, S. A., Scientific Research Institute of Nuclear Physics, Electronics and Automation Affiliated With Tomsk Polytechnical Institute

"Attenuation of Waves in Superconducting Elliptical Waveguides"

Gor'kiy, Izvestiya VUZov: Radiofizika, Vol 15, No 12, 1972, pp 1944-1946

Abstract: Formulas are derived for the coefficients of attenuation of E and H waves in terms of the surface impedance for superconducting elliptical waveguides. Curves are given for the coefficients of attenuation of odd and even modes at various eccentricity values for niobium waveguides at 4.2°K. Analogous curves could be plotted for other temperatures and materials. The author thanks A. N. Didenko for suggesting the topic and for advice.

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USSR

NOVIKOV, S. A., and SINITSINA, L. M., Moscow

"The Effect of Impact Pressure on the Magnitude of Critical Shear Stresses in Metals"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, Nov-Dec 70, pp 107-110

Abstract: An investigation is reported on the critical shear stress magnitude σ_* behind the shock wave front in aluminum at 300 and 650 kbar, in copper at 240 and 550 kbar, and in lead at 460 kbar. Theoretical and experimental data on pressure attenuation on the shock wave front due to unloading were compared. The phenomenon of pressure attenuation on the front of a shock wave produced by impact of a plate on a sample made of the same material was investigated, and it is shown that pressure on the shock front decreases in stepwise fashion. The flow behind a shock wave front was calculated by taking into account the interaction of the shock wave with the elastic unloading wave, on the basis of a known equation of state, for aluminum at 650 kbar and for lead at 460 kbar. The results are compared with experimental data. They show that the role of strength is

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USSR

NOVIKOV, S. A., and SINITSINA, L. M., Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, Nov-Dec 70, pp 107-110

very important for aluminum at up to 680 kbar and for copper at up to 860 kbar. A comparison of the effects of pressure and temperature on critical shear stress shows that at an impact pressure corresponding to metal fusion the value σ_* is practically equal to zero, and thus the function $\sigma_* = \sigma_* (\rho)$ must have a maximum at impact pressure.

2/2

UDC 539.4.019.3

USSR

GUSEVA, I. P., NOVIKOV, S. N., and STEPANOV, A. P., Sverdlovsk

"Effect of Heat Treatment on the Strength of Al-B-Si Glass Fiber"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp 110-117

Abstract: The heat treatment of an Al-B-Si glass fiber was investigated for the effect on strength in a temperature range from 50 to 500°C. From 50 to 200°C the glass fiber strength remains constant (about 255 kG/mm^2) after which the strength drops off with the amount of strength loss a function of the hydrofluoric acid concentration (at 500°C, strength in 0.5% HF = 145 kG/mm^2; 0.2% HF, 195 kG/mm^2; and 0.02%, 220 kg/mm^2). In distilled wate the glass fiber strength was 345 kG/mm^2 throughout the entire temperature range. It was determined that surface cracks form on the glass fiber in the 200-300°C interval and are a direct cause of strength loss. Strength loss is not attrubutable to high temperatures but is a result of the interaction of coordinate-unsaturated centers on the glass surface with the surrounding atmosphere (oxygen from the air) and the proposed mechanism of strength lowering during heat treatment of Al-B-Si and other silicate fibers is the chemisorption of oxygen by the coordination-unsaturated surface centers. Four figures, sixteen bibliographic references.

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USSR

UDC 621.376.234

RYVKIN, S.M., MATVEYEV, O.A., NOVIKOV, S.R., STROKAN, N.B.

"Semiconductor Detectors Of Nuclear Radiation"

V sb. Poluprovodnikovyye pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 25, 1971, pp 267-298

Abstract: The principal problems which arise during design and production of semiconductor counters are described. It is shown that the basic reason which at present limits the resolution of counters is the quality of the starting material. The parameters of the material which determine the characteristics of the counters are shown and methods of measuring the magnitudes indicated are presented. Data are presented on germanium lithium-drift detectors, germanium "radiation" detectors, silicon surface-barrier detectors, and silicon lithium-drift detectors. The technological processes for production of the counters are considered, in particular the various methods for accomplishment of compensation in the operating zone of the detector, as well as methods for creation of contacts. Together with transition procedures, considerable attention is given to ion implantation methods. 13 fig. 1 tab. 64 ref.

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Glass and Ceramics

UDC 666.76+18

USSR

GUSEVA, I. P., and NOVIKOV, S. N.

"Surface Structure and Strength of Etched Glass Fibers"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 128-133

Abstract: Using a mercury porosimeter, an attempt was made to relate the surface state of fibers treated with HF acid to their tensile strength. Alumoborosilicate fibers 6 microns in diameter with an initial strength of ~ 250 kg/mm^2 were subjected to 0.5, 0.2, and 0.02% HF for 5-100 min. The total volume of defects, which varied from 25 to 1500 Å, was used as the structural characteristic of the fiber surface. The total volume of surface defects increased considerably when fibers were treated with 0.5 and 0.2% HF acid (both concentrations produced almost identical effect) and the tensile strength of fibers sharply decreased. For these concentrations the formation of comparatively large (400-1500 Å) defects was characteristic during the first 30 min of treatment. During the next 30 min of treatment, the formation of defects slowed down because of the appearance of porous fluoride film on the fiber surface. The rate of formation of defects was the slowest for 200-400 Å pores, but it increased ten-fold for 400-1500 Å pores. The volume of pores present on the initial fibers did not increase in 0.02% HF acid. The tensile strength of

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GUSEVA, I. P. and NOVIKOV, S. N., Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 128-133

these fibers decreased slightly during the first 30 min of treatment but remained constant at ~ 210 kg/mm^2 for the next 30 min. Fibers treated with 0.2 and 0.5% HF decreased their initial tensile strength from 250 kg/mm^2 to 50-150 kg/mm^2, depending on the treatment time. The longer the treatment, the higher the strength losses.

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1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INITIAL TEMPERATURE DEPENDENCE OF THE THICKNESS OF AN UNBURNED POWDER LAYER ON A METAL PLATE -U-

AUTHOR-(04)-NEFEDOVA, O.I., NOVIKOV, S.S., POKHIL, P.F., RYAZANTSEV, YU.S.

COUNTRY OF INFO--USSR

SOURCE--PMTF, ZHURNAL PRIKLADNOI MEKHANIKI I TEKHICHESKOI FIZIKI, MAR.-APR. 1970, P. 85-89

DATE PUBLISHED--------70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--COMBUSTION R AND D, POWDER COMBUSTION, MATHEMATIC EXPRESSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1966 STEP NO--UR/0207/70/000/000/0085/0089

CIRC ACCESSION NO--AP0133810

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133810

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF CERTAIN FINDINGS REGARDING THE DEPENDENCE OF THE THICKNESS OF AN UNBURNED POWDER LAYER ON THE INITITAL TEMPERATURE. THE POSSIBILITY OF AN APPROXIMATE CALCULATION OF THE UNSTEADY PROCESSES ACCOMPANYING THE APPROACH OF A COMBUSTION WAVE TO THE PLANE OF CONTACT BETWEEN THE POWDER AND THE METAL IS CONSIDERED. SOME THEORETICAL AND EXPERIMENTAL FINDINGS ARE COMPARED.

UNCLASSIFIED

Acc. Nr: AP0047378 Abstracting Service: 5/70 INTERNAT. AEROSPACE ABST. Ref. Code: US 0000

N

A70-23228 # Extinction of propellant near the contact with a metal. S. S. Novikov (Akademiia Nauk SSSR, Institut Khimicheskoi Fiziki, Moscow, USSR) and Iu. S. Riazantsev (Akademiia Nauk SSSR, Institut Problem Mekhaniki, Moscow, USSR). *AIAA Journal*, vol. 8, Feb. 1970, p. 358, 359. 10 refs.

Description of a method of investigating the unsteady phenomena accompanying extinction. Under this method of 'freezing' the combustion zone, the thermal interaction between the latter and the powder-metal contact is used to produce extinction. The method can be used for obtaining reliable experimental data about the dependence of the unburned powder layer thickness on the initial temperature. It can also be useful for verifying theories of nonsteady combustion.

M.V.E.

ALS

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REEL/FRAME 19790904

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USSR

UDC 536.46

BERMAN, V. S., NOVIKOV, S. S., RYAZANTSEV, Yu. S., Moscow

"Calculation of One Unstable Combustion Mode of a Condensed System"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1972, pp 23-30.

Abstract: A one-dimensional process of combustion of a powder specimen on a metallic substrate with constant pressure is studied on the basis of a two-phase model of thermal decomposition of the condensed system. The results of numerical calculations performed by computer are presented. These results are compared qualitatively with experimental results. The results of earlier works are summarized, in which a combustion mode was observed including a stage of ignition, a stage of stable propagation and a stage of cessation of combustion as the combustion front reached the plate, which must be related to heat flow out of the combustion zone into the plate, which has much greater heat conductivity than the powder. It was established that after cessation of combustion, a thin layer of unburned powder remains on the plate, the thickness of which depends on the pressure and initial temperature, and experimental data were produced on the thickness of the unburned residue as a function of pressure and initial temperature.

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USSR UDC 536.46

NOVIKOV, S. S., RYAZANTSEV, YU. S., and TUL'SKIKH, V. YE., Institute of Chemical Physics, Acad. Sc., USSR, Moscow

"The Influence of Entropic Waves on the Stability of Combustion in a Semi-Closed Space"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 6, Apr 72, pp 1358-1361

Abstract: The main principle of the theory of the stability of powder combustion in a semi-closed space is based on the assumption of isothermal conditions in the combustion chamber. Later it was found that acoustical and entropic waves may form in such a chamber. Methodes for calculating acoustical conductivity have been developed. In any analysis of gas vibration in the combustion chamber it is necessary to consider the possibility of generating pressure vibrations due to the interaction of entropic waves at the outlet from the combustion chamber. In this paper a theoretical treatment is given to longitudinal gas vibration during front combustion in a chamber with constant crossection, the combustion products evolving through a jet outlet.

NOVIKOV, S. S. & RYAZAMTSEV, Yu. S.

"A Model of Unsteady Burning" Akademiya Nauk SSSR. Doklady, 1961, v. 140, no. 2, p. 409-411. DESCRIPTORS: "Propellants, Rocket propellants, Combustion, Stability, Acoustic impedance, Pipes, Mathematical analysis. The acoustic impedance of a burning surface is investigated using a one-dimensional model in which instability occurs only on the longitudinal acoustic modes. TECHNICAL TRANSLATIONS, Vol. 8, no. 12, Dec. 30, 1962. UNCLASSIFIED.

"Theory of Combustion Stability of Solid Propellants," (Co-author: Ye. S. Ryazantsev) (Moscow), Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No. 1, 1965, pp. 57-61. TOPIC TAGS: Combustion stability theory, Solid propellant, Combustion stability criterion, Combustion stability, Combustion. Mathematical criteria of the combustion stability of solid propellants were derived for the zero- and 1st-order reaction in Q-model combustion (when the gasification of the condensed phase (k-phase) occurs as a result of the exothermic reaction in the k-phase) and for the zero- and 1st-order reactions in T_s-model combustion (when the gasification of the k-phase occurs as a result of the surface, gaseous-phase temperature, T_s). The proposed combustion stability theory takes into account the heat generated in the k-phase. The effect of the heat generated in the surface layer of the k-phase and the temperature fluctuations in the gaseous phase near the charge surface on the bombustion stability of solid propellants is discussed. A.T.D. Press, Vol. 3, No. 218, 11 May 63 (U)

"The Theory of the Steady Propagation Velocity of an Exothermic Reaction Front in the Condensed Phase," (Coauthor: Yu. S. Ryazantsev), (Moscow), Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No. 3, 1965, pp. 43-48. TOPIC TAGS: Solid propellant, Combustion, Combustion instability, Burning velocity, Condensed phase reaction. The exothermic reaction in the condensed phase may in some cases libe ate up to 80% of the total heat release in the combustion of a [illegible]. However, even in cases when the heat release in the condensed phase is much

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1/3 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--NITRATION OF IODO DERIVATIVES OF IMIDAZOLE -U-

AUTHOR-(05)-NOVIKOV, S.S., KHMELNITSKIY, L.I., LEBEDEV, O.V., YEPISHINA, L.V., SEVOSTYANOVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (5), 664-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, IODINATED ORGANIC COMPOUND, IMIDAZOLE, ORGANIC NITRO COMPOUND, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/E01 STEP NO--UR/0409/70/000/005/0664/0668

CIRC ACCESSION NO--AP0140303

UNCLASSIFIED